

**WHAT IS CLAIMED IS:**

1. A thermal transfer system comprising:  
a container for receiving a medium;  
a structure positioned in said container;  
a first heat exchange member at least partially coupled to an interior surface of said container;  
a second heat exchange member at least partially coupled to said structure wherein a portion of said first heat exchange member is placed in close proximity to a portion of said second heat exchange member to aid formation of a thermal transfer bridge that improves conduction of heat into or out of the medium.
2. A thermal transfer system as in claim 1 wherein:  
a heating or cooling device is coupled to and provides heating or cooling of said container.
3. A thermal transfer system as in claim 1 wherein:  
a heating or cooling device is coupled to and provides heating or cooling of said structure positioned inside said container.
4. A thermal transfer system as in claim 1 wherein:  
a heating or cooling device is coupled to and provides heating or cooling of said structure and said container.
5. A thermal transfer system as in claim 1 wherein:  
there is a plurality of heat exchange members.
6. A thermal transfer system as in claim 1, further comprising:  
a removable liner configured to cover at least a portion of said first heat exchange member.

1 7. A thermal transfer system as in claim 1, further comprising:  
2 a removable liner configured to cover at least a portion of said second  
3 heat exchange member.

1 8. A thermal transfer system as in claim 1, further comprising:  
2 a removable liner configured to cover at least a portion of said first  
3 heat exchange member and said second heat exchange member.

1 9. A thermal transfer system as in claim 1 wherein:  
2 a volume of said container is in the range from substantially 1 liter to  
3 250 liters.

1 10. A thermal transfer system as in claim 1 wherein:  
2 a volume of said container is in the range from substantially 250 liter to  
3 10,000 liters.

1 11. A thermal transfer system as in claim 1 wherein:  
2 a distal end of said first heat exchange member contacts at least a  
3 portion of a distal end of said second heat exchange member.

1 12. A thermal transfer system as in claim 1 wherein:  
2 a distance between said distal end of said first heat exchange member  
3 and a distal end of said second heat exchange member is a non-contacting  
4 distance not greater than one inch.

1 13. A thermal transfer system as in claim 1 wherein:  
2 the container comprises a jacket defining an interstitial space  
3 positioned between the jacket and a wall of the container for receiving a flow

4 of a cooling fluid said jacket further including a plurality of spiral baffles for  
5 enhancing thermal exchange between said fluid and said container.

1 14. A thermal transfer system as in claim 1 wherein:  
2 said medium is substantially uniformly heated or cooled.

1 15. A thermal transfer system as in claim 1 wherein:  
2 said medium is heated or cooled in substantially one direction relative  
3 to said structure.

1 16. A thermal transfer system as in claim 1 wherein:  
2 said heat exchange members are positioned to induce a thermal  
3 gradient in said medium such that said thermal gradient is in a predetermined  
4 direction.

1 17. A thermal transfer system as in claim 1 wherein:  
2 said medium is heated or cooled in a predetermined direction.

1 18. A thermal transfer system as in claim 1 wherein:  
2 said medium is heated or cooled such that the thermal gradient is in a  
3 predetermined direction.

1 19. A thermal transfer system as in claim 1 wherein:  
2 said medium is heated or cooled at a predetermined rate.

1 20. A thermal transfer system as in claim 1 wherein:  
2 said medium is heated or cooled such that the thermal gradient is in a  
3 predetermined direction and said heating or cooling occurs at a predetermined  
4 rate.

1 21. A thermal transfer system as in claim 1 wherein:  
2 said medium is a biopharmaceutical product.

1 22. A thermal transfer system as in claim 1 wherein:  
2 said container has a nonporous bottom.

1 23. A thermal transfer system as in claim 1 wherein:  
2 said container has nonporous walls.

1 24. A thermal transfer system as in claim 1 wherein:  
2 said container has a top.

1 25. A thermal transfer system as in claim 1 wherein:  
2 said container has a nonporous top.

1 26. A thermal transfer system as in claim 1 wherein:  
2 a portion of said first heat exchange member is configured to improve  
3 the thermal transport of said thermal transfer bridge.

1 27. A thermal transfer system as in claim 1 wherein:  
2 a portion of said second heat exchange member is configured to  
3 improve the thermal transport of said thermal transfer bridge.

1 28. A thermal transfer system as in claim 1 wherein:  
2 a portion of said first heat exchange member is configured to improve  
3 the thermal transport of said thermal transfer bridge and a portion of said  
4 second heat exchange member is configured to improve the thermal transport  
5 of said thermal transfer bridge.

1 29. A thermal transfer system as in claim 1 wherein:

said second heat exchange member is placed at an end of said structure.

30. A thermal transfer system as in claim 1 wherein:  
a heat exchange fluid flows within the structure.

31. A thermal transfer system as in claim 1 wherein:  
a heat exchange fluid flows within the first heat exchange member.

32. A thermal transfer system as in claim 1 wherein:  
an interior portion of the first heat exchange member has baffles.

33. A thermal transfer system as in claim 1 wherein:  
the first heat exchange member is configured to maximize an area of a  
surface of the heat exchange member that is in contact with the medium.

34. A thermal transfer system as in claim 1 wherein:  
a heat exchange extension is at least partially coupled to the first heat  
exchange member.

35. A thermal transfer system as in claim 1 wherein:  
the medium includes proteins.

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